



City of Concord Water Resources Department – Wastewater Division

Wastewater Collection System Performance Annual Report

Fiscal Year July 2013 – June 2014

I. General Information

System Name: City of Concord Wastewater Collection System

Responsible Entity: City of Concord

Persons in Charge: Christie Putnam
Director of Water Resources

Mark Varnadore
Wastewater Utility Services Coordinator & System Operator

Applicable Permits: WQCS00326
Tributary to NC0036269 and NC0081621

Description of the System:

The City of Concord Wastewater Collection System consists of over 539 miles of sewer pipelines, approximately 13,308 manholes, and 24 wastewater pump stations. The system came into existence in the early 1900s and continued to be upgraded and extended to become the system we operate today.

II. Performance

The City of Concord's Wastewater Division performs the operation and maintenance of the City's collection system, which serves approximately 29,457 customers. Eleven crews provide this service. Two rapid-response crews respond to all calls related to potential blockages and overflows in the system. Two jet-vac truck crews perform maintenance on the system by removing obstructions that may be present in the system,

thus limiting the number of possible back-ups and overflows. These trucks are also used to maintain the City's 24 wastewater pump stations through periodic cleaning and sludge removal. An inflow-infiltration crew locates defects and obstructions in the pipelines by the use of a camera that videotapes the inside of the sewers. The City also has a crew that is dedicated to the operation and maintenance of the City's wastewater pump stations. One service line installation and repair crew installs new service connections to the City's sewer mains and repairs sewer mains as well as manholes. One crew is dedicated to conducting smoke tests on the sewer system, along with GPS work. One crew is dedicated to the installation of new sewer lines and the replacement of aged and deteriorated sewer lines. A right-of-way maintenance crew collects data on the location of the various components of the City's system, provides maintenance of the wastewater collection system's rights-of-way, and performs semi-annual inspections of the system. The City has a System Compliance Officer who is responsible for the implementation of the Fats, Oil, and Grease Program (FOG), along with the inspection of sewer right-of-ways to ensure easement accessibility.

During the past fiscal year, the City of Concord was requested to investigate approximately 266 reports of possible sewer-related overflows. These calls were related to both municipal and private lines. The City of Concord had 1 incidence that resulted in the spill or overflow of more than 1,000 gallons of wastewater to surface waters of the State.

September 2012

Total +/- 200 gallons to waters of the State

1015 Elrond Drive NW (1,800-gallon spill)

This spill occurred as a result of grease and debris being discharged into the sewer system. The affected pipe has been cleaned and all grease and debris removed. There were no known environmental impacts as a result of

The Wastewater Division began a program in FY '06-'07 to make property owners aware of sewer easements on their property. The purpose of this program is to initiate corrective actions to existing accessibility problems and prevent future accessibility problems. Easements are not always identified on property deeds. The first step to ensure access to the sewer system is to confirm that the property owner is aware of the City's easements so they can plan or modify the use of their property accordingly. Notification letters include the specific reference to a recorded easement or subdivision plat that affects the owner's property. To date, the City of Concord has distributed 3,776 easement notification letters to customers, including information about the City's requirements for keeping the easement accessible. Easement research and notifications for over 99% of the City's utility service area have been completed. Properties with sewer easements are flagged in the City's customer database so new owners can be notified when property ownership is transferred. To date, 1,716 letters have been mailed as a result of property transfers. 328 property owners have responded to the letters with request for additional information concerning easement location.

The Wastewater Compliance Officer oversees the department's FOG (Fats, Oils and Grease) program. The officer reviewed 83 sets of plans for new construction and up-fit plans dealing with food preparation and grease disposal. Monthly pumper hauler routing reports and individual food service facility pumping manifests are two items that are used to monitor grease disposal from the food service industry. City crews assist the Compliance Officer by providing information pertaining to grease buildups noticed during daily maintenance operations. Information gleaned from the crews is used to provide educational information to the areas or establishments that are contributing to the problem. The Compliance Officer also has an extensive educational program, providing grease related programs to 1st grade, 3rd grade, 6th grade students, Journey Through Concord and Concord 101 adult education programs. A total of 1,143 students, and 56 adults participated in these programs.

The City of Concord is continually performing preventative maintenance activities and undergoing rehabilitation projects to prevent sanitary sewer overflows. The following activities have been completed during the past fiscal year.

Jet-Vac Line Cleaning	341,616	linear feet
Dye Testing	83	
Sewer Service Inspections	701	
Sewer Line Replacements	28,143	linear feet
Smoke Testing	47,520	linear feet
T.V. Inspections	186,697	linear feet
Pipe Lining	16,606	linear feet
Manholes Rehabilitated	122	

The City of Concord also operates an in-house flow monitoring program. The desired outcomes of this program are to ensure adequate system capacity, prevent sanitary sewer overflows, identify segments of the system impacted by inflow and infiltration, and prioritize field investigations and repairs that could create the greatest reduction in the conveyance and treatment of unnecessary flow. Over the past year, the following basins were studied:

- Stricker Branch 1600 SW, IBCC 1800 NE, Midland Area basin that flow's to WSACC Muddy Creek WWTP.
- Concord Mills AMC and ROCT 10200 SW

During April 2012, 13 meters were installed in the Coddle Creek basin, including the contributing Afton Run and Wolf Meadow Creek basins. These meters will monitor flow responses in this portion of the City's sewer system to rain and groundwater for at least 6 months.

The Concord wastewater collection system conveys wastewater from our customers to large pipes owned by the Water and Sewer Authority of Cabarrus County (WSACC). WSACC also owns and operates the wastewater treatment facilities. The City is billed for conveyance and treatment based on the volume measured in the sewer. Defects in the sewer system allow rainwater and groundwater to enter sewer pipes. As a result, the volume that Concord bills its utility customers is less than the volume that WSACC bills the City. This volume difference is called the "unaccounted sewer volume." In FY '11-'12, the volume of unaccounted flow was reduced by approximately 383 million gallons (based on the projected unaccounted volume per inch of rain). Removing this volume from the system saved the City almost \$473,000 in conveyance and variable treatment charges, and earned the Wastewater Division the City's 2011 annual productivity improvement award.

In 2012, the Wastewater Division began investigating connections to the collection system from the downtown business district. The purpose of this investigation is: 1) to confirm where each building/address discharges to the City's wastewater collection system, and 2) to search for connections that should not be discharging to the wastewater collection system.

Concord was the inaugural recipient of the North Carolina Collection System of the Year Award. This award is issued by the North Carolina American Water Works Association and the North Carolina Water Environment Association (NC AWWA-WEA), an association dedicated to providing water and wastewater education, training, and service in an effort to protect public health and the environment. The mission of the North Carolina Collection System of the Year Award is to identify and recognize the municipality that protects the public health and the natural beauty of the environment through proactive practices of management, operations, and maintenance beyond what is required by its NC Department of Environment and Natural Resources collection system permit. A maximum of four wastewater collection systems in the state may be recognized each year – one for each system size category (large, medium, small, and micro). Concord won the large system category (greater than 500 miles of gravity sewer).

III. Notification

Customers of the City of Concord's wastewater collection system were notified regarding the availability of this annual report through a public notice in the *Concord & Kannapolis Independent Tribune*, a local daily newspaper. A copy of this report is available for review at the Alfred M. Brown Operations Center at 850 Warren C. Coleman Boulevard, Concord, North Carolina; at City Hall, 26 Union Street South, Concord, North Carolina; and on the City of Concord's website at www.concordnc.gov.

IV. Certification

I certify under penalty of law that this report is complete and accurate to the best of my knowledge. I further certify that this report has been made available to the users or customers of the named system and that those users have been notified of its availability.

_____ Date: _____

CITY OF CONCORD

Christie Putnam, Director of Water Resources